

WHAT IS CLAIMED IS:

1. A sorting machine for diverting an article from an article stream, the sorting machine comprising:
 - 5 a manifold having a first blow-off conduit and a second blow-off conduit formed therein, said first blow-off conduit terminating at a first blow-off port and said second blow-off conduit terminating at a second blow-off port;
a first valve supported on said manifold, said first valve being in fluid communication with said first blow-off conduit of said manifold for supplying a burst
10 of fluid out of said manifold through said first blow-off port to divert an article from an article stream intersecting with said first blow-off port, said first valve further having a by-pass duct in fluid communication with said second blow-off conduit of said manifold; and
a second valve supported on top of said first valve, said second valve being in
15 fluid communication with said by-pass duct of said first valve for supplying a burst of fluid out of said manifold through said second blow-off port to divert an article from an article stream intersecting with said second blow-off port.
2. A sorting machine as defined in Claim 1, wherein said first and second valves
20 are pneumatic valves and said fluid is air.
3. A sorting machine as defined in Claim 1, wherein the space between said first and second blow-off ports of said manifold is less than the width of said first valve.
- 25 4. A sorting machine as defined in Claim 1, wherein said manifold further includes a fluid supply line formed therein for supplying a fluid to said first and second valves.
- 30 5. A sorting machine as defined in Claim 4, wherein said first valve includes a fluid supply duct in fluid communication with said fluid supply line formed in said manifold, said fluid supply duct supplying fluid to said first and second valves.

6. A sorting machine as defined in Claim 1, wherein said first and second valves include actuators electrically connected to a vision system, said actuators receiving a signal from said vision system for selectively activating said valves to respectively supply said bursts of fluid out of said manifold through said first and second blow-off ports.
7. A sorting machine as defined in Claim 1, wherein said first and second blow-off conduits of said manifold each include a valve connection interface opposite said first and second blow-off ports for fluidly connecting said first valve to said first and second blow-off conduits, said valve connection interfaces being provided with seals to prevent fluid leakage.
8. A sorting machine as defined in Claim 1, wherein said by-pass duct of said first valve is disposed within said first valve and extends from a bottom surface of said first valve to a top surface of said first valve, said second valve being supported on said top surface of said first valve.
9. A sorting machine as defined in Claim 1, wherein said first valve further includes a blow-off duct in fluid communication with said first blow-off conduit of said manifold and said second valve further includes a blow-off duct in fluid communication with said by-pass duct of said first valve, said blow-off ducts of said first and second valves being sized and shaped to accommodate for the height difference between said first and second valves.
10. A sorting machine as defined in Claim 1, wherein said first and second blow-off ports are disposed on a first face of said manifold and said first valve is supported on a second face of said manifold.

11. A sorting machine as defined in Claim 10, wherein said manifold further includes a third blow-off conduit formed therein, said third blow-off conduit terminating at a third blow-off port disposed on said first face of said manifold, and wherein said sorting machine further includes a third valve in fluid communication with said third blow-off conduit of said manifold for supplying a burst of air out of said manifold through said third blow-off port to divert an article from an article stream intersecting with said third blow-off port.
12. A sorting machine as defined in Claim 11, wherein said first valve includes a second by-pass duct in fluid communication with said third blow-off conduit of said manifold, and wherein said second valve includes a by-pass duct in fluid communication with said second by-pass duct of said first valve, said third valve being supported on top of said second valve and being in fluid communication with said by-pass duct of said second valve for supplying a burst of fluid out of said manifold through said third blow-off port.
13. A sorting machine as defined in Claim 11, wherein said third valve is supported on a third face of said manifold.
14. A sorting machine as defined in Claim 13, wherein said manifold further includes a fourth blow-off conduit formed therein, said fourth blow-off conduit terminating at a fourth blow-off port disposed on said first face of said manifold, and wherein said third valve includes a by-pass duct in fluid communication with said fourth blow-off conduit of said manifold, and wherein said sorting machine further includes a fourth valve supported on top of said third valve, said fourth valve being in fluid communication with said by-pass duct of said third valve for supplying a burst of fluid out of said manifold through said fourth blow-off port to divert an article from an article stream intersecting with said fourth blow-off port.
15. A sorting machine as defined in Claim 14, wherein said first, second, third and fourth blow-off ports of said manifold are sequentially aligned, the space between the

first and the fourth blow-off ports being less than the width of said first valve plus the width of said third valve.

16. A sorting machine for diverting an article from an article stream, the sorting machine comprising:

a manifold having a first blow-off port and a second blow-off port formed therein and a top surface and a bottom surface;

a first valve supported on said top surface of said manifold, said first valve being in fluid communication with said first blow-off port of said manifold for supplying a burst of fluid out of said first blow-off port to divert an article from an article stream intersecting with said first blow-off port;

a second valve supported on one of a top of said first valve and said bottom surface of said manifold, said second valve being in fluid communication with said second blow-off port of said manifold for supplying a burst of fluid out of said second blow-off port to divert an article from an article stream intersecting with said second blow-off port.

17. A sorting machine as defined in Claim 16, wherein said second valve is supported on said top of said first valve and said sorting machine further comprises a by-pass duct for providing fluid communication between said second valve and said second blow-off port of said manifold.

18. A sorting machine as defined in Claim 16, wherein the space between said first and second blow-off ports of said manifold is less than the width of said first valve.

19. A sorting machine as defined in Claim 16, wherein said manifold further includes a fluid supply line formed therein for supplying a fluid to said first and second valves.

20. A method for decreasing the space between a first article stream intersecting a first blow-off port of a sorting machine and a second article stream intersecting a second blow-off port of said sorting machine, the method comprising the steps of:
- 5 supporting a first valve on a top surface of a manifold having said first and second blow-off ports formed therein, said first valve being in fluid communication with said first blow-off port for supplying a burst of fluid out of said first blow-off port to divert an article from said first article stream;
- 10 supporting a second valve on one of a top of said first valve and a bottom surface of said manifold, said second valve being in fluid communication with said second blow-off port for supplying a burst of fluid out of said second blow-off port to divert an article from said second article stream,
- wherein said space between said first and second article streams is less than the width of said first valve.
- 15 21. A method as defined in Claim 20, wherein said second valve is supported on top of said first valve and the method further comprises the step of supporting a third valve on top of said second valve, said third valve being in fluid communication with a third blow-off port formed in said manifold for supplying a burst of fluid out of said third blow-off port to divert an article from a third article stream intersecting said
- 20 third blow-off port, wherein the space between said first, second and third article streams is less than the width of said first valve.